



# UNITED STATES PATENT AND TRADEMARK OFFICE

VER  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,572	03/01/2004	Moon-Sook Lee	5649-1267	9878
20792	7590	09/29/2005	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			WILSON, ALLAN R	
PO BOX 37428			ART UNIT	PAPER NUMBER
RALEIGH, NC 27627			2815	

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/790,572	LEE, MOON-SOOK	
	Examiner	Art Unit	
	Allan R. Wilson	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 22 August 2005.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 17-25 and 30-35 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 31-34 is/are allowed.

6) Claim(s) 17-19,21,30 and 35 is/are rejected.

7) Claim(s) 20 and 22-25 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in
  - (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or
  - (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17, 19, 21, 30 and 35 are rejected under 35 U.S.C. § 102(e) as being anticipated by US Patent Application Publication No. 2003/0139006 to Walter et al. (“Walter”) of record.

With regards to claims 17 and 35, Walter illustrates in figures 1-16 (entire document), particularly figures 1-10, an integrated circuit substrate 1;

an interlayer dielectric 5 (FIGs 1-3) on the integrated circuit substrate and having a plurality of buried contacts 7, 8 therein;

an oxide layer 9, 11 on the interlayer dielectric and having an intaglio pattern<sup>1</sup> 12B (FIG. 7) over the buried contacts; and

a plurality of lower electrodes 10 within a single opening in the intaglio pattern, the lower electrodes electrically contacting corresponding ones of the buried contacts.

---

<sup>1</sup> An “intaglio pattern” is defined on page 4, lines 9 and 10, of the present Application as being a pattern that may be formed by “removing a portion of the oxide layer to expose a portion of the interlayer dielectric and upper surfaces of the buried contacts.” Therefore an “intaglio pattern” is an open pattern in a layer. This definition is use for the instant Application.

With regards to claims 19 and 30, Walter illustrates in FIGs. 8-10 upper electrodes 14 over corresponding lower electrodes 10 interposing a ferroelectric layer 13 therebetween, and wherein the lower electrode, the ferroelectric layer and the upper electrode form a ferroelectric memory device (DRAM).

With regards to claim 21, Walter illustrates in FIGs. 3-10 a plurality of transistors 4 in the integrated circuit substrate and wherein the buried contacts 7 electrically contact corresponding ones of the transistors.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 18 are rejected under 35 USC § 103 (a) as being unpatentable over Walter as applied to claim 17 above, and further in view of U.S. Patent No. 6,215,646 to Ochiai et al. (“Ochiai”) of record.

With regards to claim 18, Walter is discussed above, it does not show the lower electrodes comprise semi-cylindrical lower electrodes symmetrically arranged. Ochiai illustrates in figures 3-5B lower electrodes 18 comprise semi-cylindrical lower electrodes symmetrically arranged. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have semi-cylindrical lower electrodes shape produced by a standard wet etch process to form trenches with the minimum line width or less (Ochiai col. 6, lines 44-49).

*Allowable Subject Matter*

Claims 31-34 are allowed.

Claims 20 and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Response to Arguments*

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from an examiner should be directed to Primary Examiner Allan Wilson whose telephone number is (571) 272-1738. Examiner Wilson can normally be reached 7:00-4:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allan R. Wilson  
Primary Examiner  
27 September 2005